

# AmITX-SL-G

## Mini-ITX Embedded Board with 6th/7th Gen Intel® Core™ i7/i5/i3 Desktop Processor

### Features

- 6th/7th Gen Intel® Core™ i7/i5/i3, Intel® Pentium® and Celeron® Desktop Processor with Intel® Q170/H110 Chipset
- Up to 32GB dual channel DDR4 at 2133/2400MHz
- PCIe x16, PCIe x1 and Mini PCIe expansion
- 3 DisplayPort outputs on rear IO (Q170)
- Supports Smart Embedded Management Agent (SEMA®) functions

### Specifications

#### Processor & System

##### CPU

Desktop 6th Generation Intel® Core™ i7/i5/i3 and Pentium®/Celeron® Processor, LGA1151 socket

Intel® Core™ i7-6700 Processor, 4C, 3.4/4.0 GHz, 8M, 65W  
 Intel® Core™ i7-6700TE Processor, 4C, 2.4/3.4 GHz, 8M, 35W  
 Intel® Core™ i5-6500 Processor, 4C, 3.2/3.6 GHz, 6M, 65W  
 Intel® Core™ i5-6500TE Processor, 4C, 2.3/3.3 GHz, 6M, 35W  
 Intel® Core™ i3-6100 Processor, 2C, 3.7 GHz, 3M, 51W  
 Intel® Core™ i3-6100TE Processor, 2C, 2.7 GHz, 4M, 35W  
 Intel® Pentium® G4400 Processor, 2C, 3.3 GHz, 3M, 54W  
 Intel® Pentium® G4400TE Processor, 2C, 2.4 GHz, 3M, 35W  
 Intel® Celeron® G3900 Processor, 2C, 2.8 GHz, 2M, 51W  
 Intel® Celeron® G3900TE Processor, 2C, 2.3 GHz, 2M, 35W

Desktop 7th Generation Intel® Core™ i7/i5/i3 and Pentium®/Celeron® Processor, LGA1151 socket

Intel® Core™ i7-7700 Processor, 4C, 3.6/4.2 GHz, 8M, 65W  
 Intel® Core™ i7-7700T Processor, 4C, 2.9/3.8 GHz, 8M, 35W  
 Intel® Core™ i5-7500 Processor, 4C, 3.4/3.8 GHz, 6M, 65W  
 Intel® Core™ i5-7500T Processor, 4C, 2.7/3.3 GHz, 6M, 35W  
 Intel® Core™ i3-7101E Processor, 2C, 3.9 GHz, 3M, 54W  
 Intel® Core™ i3-7101TE Processor, 2C, 3.4GHz, 3M, 35W

Supports: Intel® VT, Intel® TXT, Intel® SSE4.2, Intel® HT Technology, Intel® 64 Architecture, Execute Disable Bit, Intel® Turbo Boost Technology 2.0, Intel® AVX2, Intel® AES-NI, PCLMULQDQ Instruction, Intel® Secure Key and Intel® TSX-NI

##### Chipset

Intel® Q170/H110 Chipset

##### BIOS

AMI EFI in 16MB SPI BIOS with Intel® AMT 11.0 support (Q170 only)  
 SPI header for external BIOS, optional onboard SPI BIOS socket

##### Debug Interface

40-pin multipurpose flat cable connector for use in combination with DB-40 debug module providing BIOS  
 POST code LEDs, BMC access, SPI BIOS flashing, power testpoints, debug LEDs

##### Memory

Dual channel non-ECC 2133/2400 MHz DDR4 memory up to 32GB in dual vertical SODIM sockets

##### SEMA® Support

Supports: voltage/current monitoring, power sequence debug support, AT/ATX mode control, logistics and forensic information, flat panel control, general purpose I2C, Failsafe BIOS (dual BIOS), watchdog timer and triple Smart Fan control



#### I/O Interfaces

##### Expansion Slots

- 1 PCIe x16 Gen3
- 1 PCIe x1 Gen2
- 1x Mini-PCIe card (Default: half size/full size option): support ing PCIe x1 (Gen 2)/USB2.0 (top side)
- 1x Mini-PCIe card (Default: full size/half size option): support ing PCIe x1 (Gen 2) or mSATA/USB2.0 (bottom side)

##### Serial ATA

- 3x SATA 6 Gbps ports (Jumper select NA/3.3V/5V for SATA1 and SATA2 to deliver power by SATA pin7; Default is NA)
- 2x SATA power connector

##### USB

- 4x USB 3.0 and 4x USB 2.0 on rear I/O
- 2x USB 3.0 onboard header (H110: USB 2.0)
- 1x USB 3.0 on vertical connector with keep out area for dongle (H110: USB 2.0)

##### KB/MS

- 1x PS/2 internal header

##### Serial Ports

- 3x RS-232 headers, 1x RS-232/422/485 headers (Support NA (Default)/5V/12V by jumper selection)

##### Digital IO

- 10 GPIO via onboard feature connector

#### Audio

##### Audio Codec

Realtek® ALC886

##### Interfaces

- 7.1 channel audio via 5 jacks and S/PDIF output on rear I/O
- 7.1 channel audio signals and S/PDIF output on internal header

## Specifications

### • Display

#### Graphics Core

Intel® 9th generation LP graphics core architecture with up to 18 execution units supporting DirectX 11/12, OGL4.3/4.4, and up to three independent, simultaneous displays

#### DisplayPort

3x DisplayPort v1.2 with resolution up to 4096 x 2160 @ 24Hz (3x DisplayPort(Q170) , 2x DisplayPort (H110)

#### LVDS

LVDS (optional): Single/dual channel 24-bit LVDS up to 1920x1080 @ 60 Hz (from eDP-to-LVDS converter)

#### eDP (build option)

eDP (optional): Supports 3840x2160 resolution @ 60Hz, 24bpp (not available concurrently with LVDS)

### • Ethernet

Intel® i219-LM (PHY) Ethernet controller (H110: i219-V)

- Supports Intel® AMT 11.0 (Q170 only)
- Supports Intel® vPro™ (Q170 only)

Intel® i211AT (MAC/PHY) Ethernet controller  
10/100/1000 GbE connection

### • TPM

Atmel AT97SC3204 (optional)

### • Power

Standard Input: ATX: 12V ±5% / 5Vsb ±5%

AT: 12V ±5%

Peripheral Output: Onboard headers for fan and SATA power

ATX Power Connector (14-pin)

### • Mechanical and Environmental

Dimension (mm): 170 mm x 170 mm (L x W)

#### Operating Temperature

Standard: 0°C to +60°C

Storage Temperature: -20°C to +80°C

Certification: CE, FCC Class B

#### Relative Humidity

40° C @ 95% RH Non-condensing

### • Operating Systems

#### Standard Support

6th Gen CPU: Windows 10/8.1/7, Linux

7th Gen CPU: Windows 10, Linux

#### Extended Support (BSP)

6th Gen CPU: WES7, Linux, VxWorks (TBD)

7th Gen CPU: Linux, VxWorks (TBD)

### • Intelligent Middleware

#### SEMA®

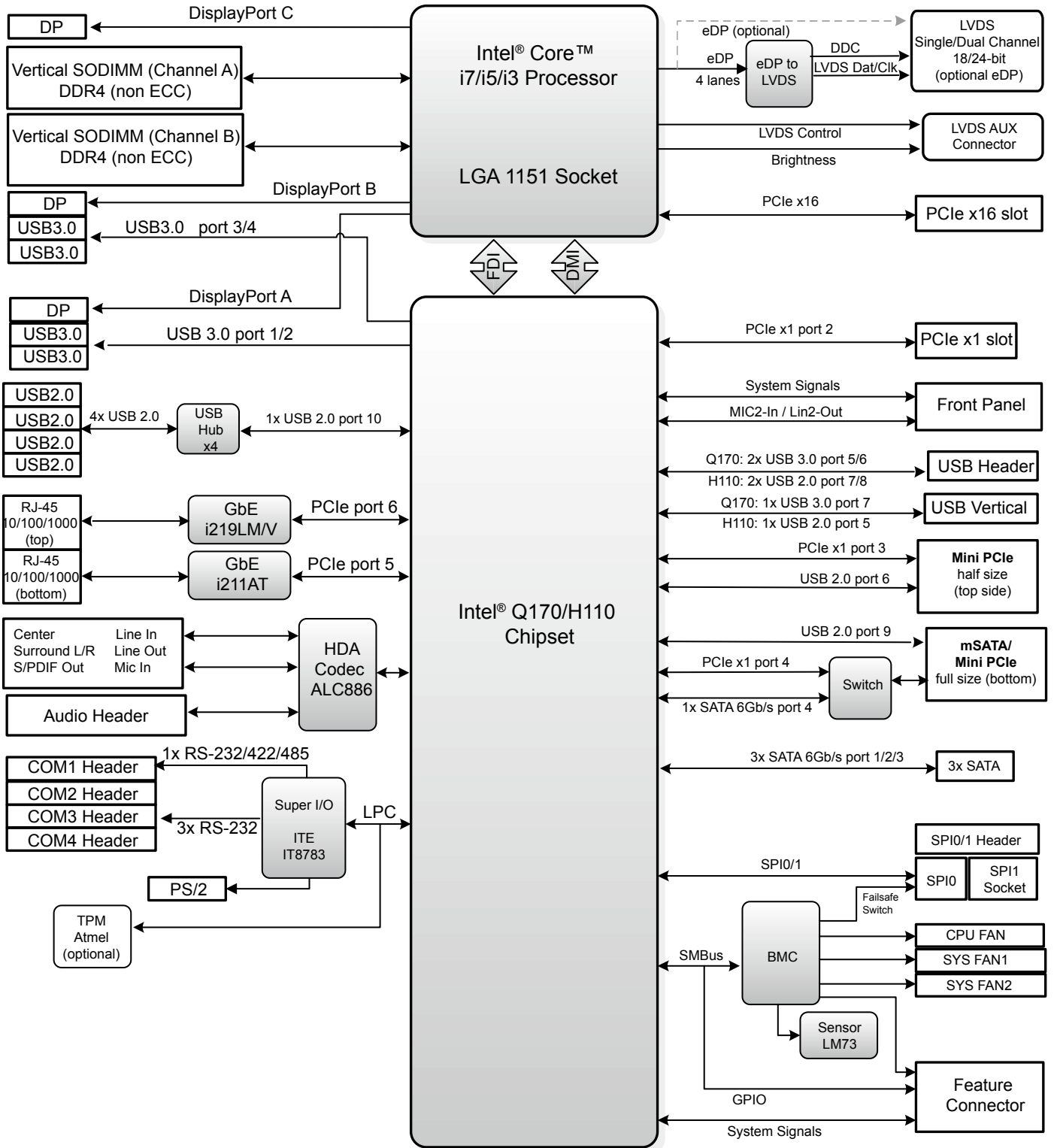
Local management, control of embedded computer systems

Extended EAPI for monitoring, controlling and analytics applications

Multiple OS support and across platforms (x86, ARM)



## Functional Diagram



## Ordering Information

- **AmITX-SL-G-Q170**  
Mini-ITX Embedded Board with 6th/7th generation Intel® Core™ i7/i5/i3 Desktop Processor with Q170 Chipset
- **AmITX-SL-G-H110**  
Mini-ITX Embedded Board with 6th/7th generation Intel® Core™ i7/i5/i3 Desktop Processor with H110 Chipset

## Packing List

- **30-20872-0000**  
ATX/AT Power Cable
- **30-20875-0000**  
SATA Dual Power Cable
- **30-10057-0600**  
SATA Cable
- **34-25314-1000**  
Rear I/O Shield

## Optional Accessories

- **30-20876-0000**  
COM Port Cable, 1 Port, 25cm
- **30-20873-0000**  
PS/2 KB/MS Cable, 40cm
- **30-20963-0000**  
USB 3.0 Cable, 2 ports, 20cm (for AmITX-SL-G-Q170)
- **30-20874-1000**  
USB 2.0 Cable, 2 ports, 20cm (for AmITX-SL-G-H110)
- **32-20513-0000**  
LGA1150 CPU Cooler, H=30.0mm, 45W
- **32-20512-0000**  
LGA1150 CPU Cooler, H=46.05mm, 45W
- **32-20113-3000**  
LGA1150 CPU Cooler, H=50.2mm, 95W
- **32-20495-0000**  
LGA1150 CPU Cooler, H=61.4mm, 95W